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Remarks:
Amended claims in accordance with Rule 137(2) EPC.

(54) Method and apparatus for configuring unique profile settings for multiple services

(57) An apparatus and method are provided for configuring unique profile settings for multiple services associated with an application in an electronic device. A profile system is provided having multiple programmable profile settings and a default profile setting for the application. Service records are received at the electronic device for each of the multiple services. The multiple services register with the profile system using a unique ID for each of the service records and include data for identifying the default profile setting for the application. Initially, the default profile setting is assigned to each of the multiple services. Subsequently, the multiple programmable profile settings are assigned to respective ones of the multiple services.

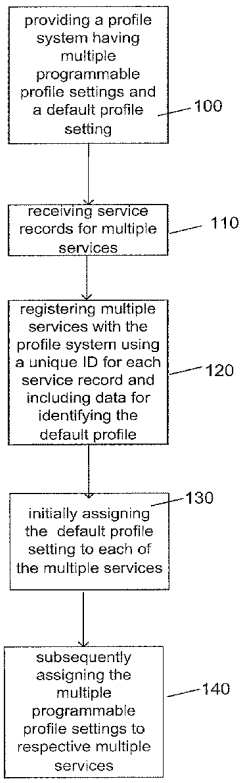

FIG. 6

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Description

[0001] The present application relates generally to electronic devices and more particularly to a method and apparatus for configuring unique profile settings for multiple services in connection with which an electronic device is provisioned.

[0002] Electronic devices such as wireless personal digital assistants (PDAs), smart telephones and laptop computers with wireless capabilities are well known for providing users with services such as e-mail, Web browsing, text messaging, etc. Such devices communicate over a wide variety of networks including data-only networks such as Mobitex and DataTAC as well as complex voice and data networks such as GSM/GPRS, CDMA, EDGE, UMTS and CDMA2000 networks.

[0003] It is known to provide multiple user-selectable profiles (e.g. loud, discreet, quiet, etc.) for notifying or alerting the user to service activity (e.g. incoming call or e-mail message, calendar event, daily alarm, etc.). On device start-up, each application (e.g. calendar, e-mail, phone, etc.) registers with a profile system using a unique ID, to facilitate programming of an individual profile setting for each application.

[0004] Some users may have multiple services that they wish to access through the device. For example, some users may wish to access multiple e-mail accounts, and other types of data services, all or some of which may be provided by different service providers.

[0005] Although it is known to select a profile for application to a particular service, it would be desirable to apply a unique profile setting to each of multiple services (e.g. a unique profile setting for each of a user's multiple e-mail accounts).

GENERAL

[0006] According to one aspect there is preferably provided a method for configuring unique profile settings for multiple services associated with an application in an electronic device, including: providing a profile system having multiple programmable profile settings and a default profile setting for the application; receiving service records for the multiple services; registering the multiple services with the profile system using, a unique ID for each of the service records and data for identifying the default profile setting for the application; initially assigning the default profile setting to each of the multiple services; and subsequently assigning the multiple programmable profile settings to respective ones of the multiple services.

[0007] By providing multiple unique profile settings for different services, the user may set a different ring tone, volume, etc., for each service (e.g. separate e-mail accounts) to which the user has subscribed.

[0008] According to an additional aspect, the ID associated with each service for registration with the profile system may also identify a default root profile setting that permits later registration with the profile system in circumstances where no service record for the service has yet been downloaded to the device. This facilitates migration of profile settings that have been programmed before Over-the-Air (OTA) device synchronization following a software upgrade, or after a system restore operation.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] Figure 1 is a schematic representation of a electronic device with a graphical user interface for programming profile settings for different applications;

[0010] Figure 2 is a block diagram of certain internal components within the electronic device of Figure 1;

[0011] Figure 3 is a block diagram of a communication system with which the electronic device of Figures 1 and 2 communicates;

[0012] Figure 4 is a block diagram of a profile system forming part of the electronic device of Figures 1 and 2, according to an exemplary embodiment;

[0013] Figure 5 is a schematic representation of the electronic device with a graphical user interface for programming profile settings for different services, according to an exemplary embodiment;

[0014] Figure 6 is a flowchart showing a method for configuring unique profile settings for multiple services according to an exemplary embodiment; and

[0015] Figure 7 is a flowchart showing a method for configuring unique profile settings for multiple services according to a further embodiment.

DESCRIPTION OF PREFERRED EMBODIMENTS

[0016] Reference is first made to Figure 1, showing an electronic device 100 based on the computing environment and functionality of a wireless personal digital assistant. It is, however, to be understood that electronic device 10 can include the construction and functionality of other electronic devices, such as desktop computers, cell phones, smart telephones, and laptops with wireless 802.11 or bluebook chip sets and the like. In one embodiment, electronic device

10 includes a housing 12, which frames an LCD display 14, as well as a speaker 16, an LED indicator 18, a trackwheel 20, an exit key 22 and a key pad 24. Trackwheel 20 and exit key 22 can be inwardly depressed to provide additional user-input. In the illustrated embodiment, LCD display 14 depicts a system clock 25 and additional information, such as generated by a "Profiles" application 26, as discussed in greater detail below

[0017] Turning briefly to Figure 2, certain internal components within the electronic device 10 are illustrated by way of a block diagram. The electronic device 10 is based on a microcomputer that includes a processor 46 connected to a read-only-memory (ROM) 48 that contains a plurality of applications executable by the processor 46 to enable the electronic device 10 to provide certain services (e.g. calendar, e-mail, phone, etc.). The processor 46 is also connected to a random access memory (RAM) 50 and a persistent storage device 52, which is responsible for various non-volatile storage functions of the electronic device 10. The processor 46 receives input from input devices 54 such as key pad 24, trackwheel 20 and exit key 22 (Figure 1). The processor 46 outputs to output devices 56 such as LCD display 14, LED indicator 18 and speaker 16 (Figure 1) The processor 46 is also connected to an internal clock 58 and a radio device 60 which, in turn, is connected to an antenna 61. Together, the radio device 60 and the antenna 61 are used to communicate over a wireless network. As discussed in greater detail below with reference to Figure 3, the electronic device 10 is operable to receive and transmit communication signals containing data that is communicated to and from a communication system via the radio device 60 and the antenna 61.

[0018] Returning to FIG. 1, LCD display 14 of electronic device 10 may be used to display different notification profiles using "Profiles" application 26. This allows the user to program customized notification or alerting profiles. A plurality of notification profiles is shown: Quiet 28, Discreet 30, and Loud 32. Each of these profiles can be customized by the manufacturer or by the user according to user preference, and can also be deleted or supplemented with additional profiles as desired. The following Table shows how each profile can be customized:

As Example of Customizing Methods of Notification

Mode of Notification	Application	Notification Behaviour	
Quiet	Message Reader	Type:	Inaudible
		Tune	None
		Volume:	Mute
	Daily Alarm	Type:	Audible
		Tune:	Ring 2
		Volume:	Low
Discret	Message Reader	Type:	Audible & Inaudible
		Tune:	Ring 3
		Volume:	Medium
	Daily Alarm:	Type:	Audible
		Tune:	Ring 1
		Volume:	Low
Loud	Message Reader	Type:	Audible
		Tune:	Ring 5
		Volume:	High
	Daily Alarm	Type:	Audible
		Tune:	Ring 6
		Volume:	High

[0019] Checkmark 34, located beside the profile "Discreet", in Figure 1, indicates that the default mode of notification for the present example is Discreet 30. Trackwheel 20 can be used to scroll through the different profiles and to select a particular profile for each application (e.g. message reader (email), daily alarm, calendar, etc.).

[0020] As illustrated in the foregoing Table, each profile can give rise to a different notification output for various applications on device 10, and notification behavior can be customized according to a variety of criteria, such as "type", "tune" and "volume". "Type" can be either audible or inaudible. Audible means a sound emanating from speaker 16 and inaudible means a light flashing from LED indicator 18. "Tune" can be any tune chosen by the manufacturer or the user and programmed into device 10. This is the tune that would be played by speaker 16 when "type" is set to audible. "Volume" determines the volume of the tune and in the present embodiment can be low, medium or high.

[0021] It will be apparent to those skilled in the art that the foregoing Table is just one example of the way in which notifications can be customized. Furthermore, the specific types, tunes and volumes outlined in this Table are not

particularly limited. Also the list of specific applications associated with each mode is not particularly limited and can match the complete set of applications on device 10.

[0022] Turning now to Figure 3, a communication system is shown over which the electronic device 10 communicates. More particularly, a system 70 is shown for provisioning a plurality of services to the electronic device 10. Thus, for example, a first e-mail account (e.g. Rogers™ e-mail) may be provided by a primary service provider 72, and a second e-mail account (e.g. Yahoo!™ email account) may be provided by a secondary service provider 74. Additional service providers, such as service provider 76, may provide further services. System 70 and service providers 72, 74, 76, etc., communicate over Internet 78, in a well-known manner. Electronic device 10 also communicates over Internet 78 via wireless services provided by a network operator 80.

[0023] The system 70 includes a registration server 82, a provisioning server 84, a subscriber registry 86 and a device registry 88. The system 70 is shown operating under control of the primary service provider 72, although the system 70 may operate under control of the secondary service provider 74, the additional service provider 76, or independently of any service provider.

[0024] The system 70 may also include a synchronization server 89 for performing data synchronization with the electronic device, as discussed in greater detail below with reference to Figures 4 and 5.

[0025] It is conventional for the primary service provider 72 to store an IP address of the registration server 82 within electronic device 10, at the time the device is delivered to the user. Upon initially activating the electronic device 10, the device detects the presence of the wireless network controlled by network operator 80 and uses the stored address of the registration server 82 to send a registration request to the registration server. The registration request includes an identification code for the device 10, the identity of the user, and the identity of the network operator 80.

[0026] Upon receipt of the registration request, server 82 attempts to authenticate the request and, if successful, extracts the information in the request message and transmits it to the provisioning server 84. Provisioning server 84 determines whether the user is permitted to provision the associated service by checking the status of the user in subscriber registry 86. Similarly, provisioning server 84 checks the status of the device in device registry 88. If provisioning server 84 is unable to approve the registration request based on the status of the user or the device as maintained in the subscriber registry 86 and/or the device registry 88 then provisioning server 84 typically either disallows or delays the registration request while the subscriber's status is checked in real-time with the network operator 80.

[0027] If the provisioning server 84 is able to approve the registration request then, the provisioning server 84 transmits (or "pushes") a service book (or multiple service books) to the device 10 that contains data and instructions to enable the device 10 to provision the associated service provided by service provider 72. The service book is configured to become active upon receipt at the device 10 to permit the user to enter a desired user ID and a desired password for the associated service.

[0028] The device 10 then transmits the user ID and password specified by the user for the associated service to provisioning server 84. Communication between the electronic device and the provisioning server 84 may be protected using encryption or other techniques, such as transport layer security (TLS). The provisioning server 84 determines if an account for the associated service may be created using the user ID and password specified by the user. If the account may be created, then provisioning server 84 creates the associated service account for device 10 in the associated server provider system 72 and downloads a corresponding service book to the electronic device 10. The corresponding service book contains service records such as a Compressed Multipurpose Internet Mail Extensions (CMIME) service record, for example.

[0029] If the user wishes to associate additional services, provisioning server 84 permits the user to specify details relating to each additional service. For example, the user may enter the e-mail address, username and password for the additional service (which may be provided by secondary service provider 74 or additional service provider 76). This information is transmitted to the provisioning server 84 which then attempts to contact the additional service provider system (e.g. secondary service provider 74 or additional service provider 76) to associate the additional service with the primary service provided by the primary service provider 72.

[0030] If the provisioning server 84 is able to configure the additional service to operate with the primary service, it pushes a new service book to the electronic device 10 that is similar to the initial service book, except that it is preferably not configured to become active automatically when received at the device 10. The new service book may be executed on electronic device 10 at the request of the user and may be used to associate additional services with the primary service. As indicated above, upon creation of the additional service account for device 10 in the associated server provider system 72, the provisioning server 84 downloads a further service book to the electronic device 10.

[0031] According to an exemplary embodiment, as shown in Figure 4, a profile system 90 is provided having multiple programmable profile settings (e.g. Loud, Discreet, Quiet, and, although not shown, optionally also vibrate, LED flash, etc.), and a default profile setting that is initially assigned to each application (e.g. calendar, messaging, tasks, alarm, etc.). In response to receipt of service records for multiple services associated with an application (e.g. multiple e-mail accounts associated with the messaging application), the multiple services register with the profile system using a unique ID for each service record. Thus, for the exemplary embodiment of Figure 4, each of the multiple messaging services

(i.e. Messaging [Desktop], Messaging [Yahoo!™], Messaging [Rogers™], etc.) registers with the profile system 90. As part of the registration process, each of the multiple services transmits data to the profile system 90 for identifying the default profile setting for the associated application (i.e. Messaging).

[0032] In response, profile system 90 initially assigns the default profile setting to each of the multiple services pending receipt of profile setting data whereupon individual programmable profile settings are assigned to respective ones of the multiple services.

[0033] As shown in Figure 5, a user interface 92 is provided for entering profile setting data. By highlighting and then clicking any of the services (Messaging [Desktop] 94, Messaging [Yahoo!™] 96, Messaging [Rogers™] 98, etc.) using trackwheel 20, the list of notification profiles Quiet 28, Discreet 30, and Loud 32 are displayed, as shown in Figure 1. The user may then enter profile setting data by selecting one of the profiles (e.g. "Discreet) using the trackwheel 20.

[0034] In some cases, such as during a system restore or after a software version upgrade, the user's programmed profiles will be reset. However, the profile setting data for the programmed profiles will have been stored on synchronization server 89 as a result of a previous routine data synchronization between the electronic device 10 and the synchronization server 89. Hence, when the device 10 and server 89 perform the next data synchronization the profile setting data may be downloaded to the electronic device 10 before the user's multiple services (e.g. e-mail accounts) have been provisioned. Consequently, the profile system 90 has no services against which to apply the profile setting data.

[0035] In this case, the profile setting data is stored in the profile system 90 but marked as hidden files. If no service records for the services in connection with which hidden profile settings have been stored are received by the device 10 within a predetermined period of time (e.g. 7 days), the hidden files are discarded during a subsequent synchronization process.

[0036] Turning to Figure 6, a flowchart is provided showing a method for configuring unique profile settings for multiple services according to an exemplary embodiment. In step 100, profile system 90 is provided having multiple programmable profile settings and a default profile setting for the application (e.g. messaging). In step 110, service records are received for the multiple services from provisioning server 84. In step 120, the multiple services register with the profile system 90 using a unique ID for each service record and including data for identifying the default profile setting for the application. In step 130, the default profile setting is initially assigned to each of the multiple services. Then, at step 140, the multiple programmable profile settings are subsequently assigned to respective ones of the multiple services.

[0037] Turning to Figure 7, a flowchart is provided showing a method for configuring unique profile settings for multiple services according to a further embodiment. In step 200, profile system 90 is provided having multiple programmable profile settings. In step 210, profile setting data is downloaded to the electronic device 10 from synchronization server 89. In step 220, service records are received for the multiple services from provisioning server 84. In step 230, the multiple services register with the profile system 90 using a unique ID for each service record. In step 240, the multiple services register with the profile system 90 using a unique ID for each service record. Then, at step 250, the multiple programmable profile settings are assigned to respective ones of the multiple services.

[0038] While the embodiment described herein is directed to a particular implementation for configuring unique profile settings for multiple services, it will be understood that the steps described hereinabove are not limited to the order in which they are described. The steps described can be performed in any suitable order as may occur to those skilled in the art.

[0039] Many other modifications and variations may occur to those skilled in the art. All such modifications and variations are believed to be within the sphere and scope of the present application.

Claims

1. A method for configuring unique profile settings for multiple services associated with an application in an electronic device, comprising:

   providing a profile system having multiple programmable profile settings;
   receiving service records for said multiple services;
   registering said multiple services with said profile system using a unique ID for each of said service records; and
   assigning said multiple programmable profile settings to respective ones of said multiple services.

2. The method of claim 1, wherein said step of providing comprises providing the profile system having multiple programmable profile settings and a default profile setting for said multiple services; said step of registering comprises registering said multiple services with said profile system using a unique ID for each of said service records and data for identifying the default profile setting for said application; and said method further comprises the step of initially assigning said default profile setting to each of said multiple services prior to subsequently assigning said multiple programmable settings to respective ones of said multiple services.

3. The method of claim 1 or claim 2, wherein said multiple programmable profile settings are assigned to said respective ones of said multiple services via a user interface.

4. The method of any one of the preceding claims, wherein it further comprises downloading profile setting data to said electronic device from a synchronization server.

5. The method of claim 4, wherein said multiple programmable profile settings are assigned to said respective ones of said multiple services as a result of said downloading said profile setting data during synchronization between said electronic device and a synchronization server.

6. The method of any one of the preceding claims, wherein said profile setting data is stored in said electronic device in hidden files pending receipt of said service records.

7. The method of claim 6, wherein said profile setting data is discarded in the event said service records have not been received within a predetermined time period.

8. An apparatus for configuring unique profile settings for multiple services associated with an application in an electronic device, comprising:

a profile system having multiple programmable profile settings;
means for receiving service records for said multiple services;
means for registering said multiple services with said profile system using a unique ID for each of said service records; and
means for assigning said multiple programmable profile settings to respective ones of said multiple services.

9. The apparatus of claim 8, wherein the profile system has multiple programmable profile settings and a default profile setting for said multiple services; said means for registering is arranged to register said multiple services with said profile system using a unique ID for each of said service records and data for identifying the default profile setting for said application; and said apparatus further comprises means for initially assigning said default profile setting to each of said multiple services prior to said means for assigning subsequently assigning said multiple programmable settings to respective ones of said multiple services.

10. The apparatus of claim 8 or claim 9, further comprising a user interface for assigning said multiple programmable profile settings to said respective ones of said multiple services.

11. The apparatus of any one of claims 8 to 10, further comprising a synchronization server for downloading profile setting data to said electronic device whereupon said multiple programmable profile settings are assigned to said respective ones of said multiple services.

12. The apparatus of any one of claims 8 to 11, further comprising memory within said electronic device for storing said profile setting data as hidden files pending receipt of said service records.

13. The apparatus of claim 12, further comprising means for discarding said profile setting data in the event said service records have not been received within a predetermined time period.

14. A computer-readable medium having computer readable code embodied therein for causing a computing device to perform the method of any one of claims 1 to 7.

Amended claims in accordance with Rule 137(2) EPC.

1. A method in an electronic device, said method comprising:

providing a profile system for configuring unique profile settings for an application, said profile system having multiple programmable profile settings associated with multiple services;
receiving service records for said multiple services;
registering said multiple services with said profile system using a unique ID for each of said service records; and
assigning said multiple programmable profile settings to respective ones of said multiple services.

2. The method of claim 1, wherein said step of providing comprises providing the profile system having multiple programmable profile settings and a default profile setting for said multiple services; said step of registering comprises registering said multiple services with said profile system using a unique ID for each of said service records and data for identifying the default profile setting for said application; and said method further comprises the step of initially assigning said default profile setting to each of said multiple services prior to subsequently assigning said multiple programmable settings to respective ones of said multiple services.

3. The method of claim 1 or claim 2, wherein said multiple programmable profile settings are assigned to said respective ones of said multiple services via a user interface.

4. The method of any one of the preceding claims, wherein it further comprises downloading profile setting data to said electronic device from a synchronization server.

5. The method of claim 4, wherein said multiple programmable profile settings are assigned to said respective ones of said multiple services as a result of said downloading said profile setting data during synchronization between said electronic device and a synchronization server.

6. The method of claim 4 or claim 5, wherein said profile setting data is stored in said electronic device in hidden files pending receipt of said service records.

7. The method of claim 6, wherein said profile setting data is discarded in the event said service records have not been received within a predetermined time period.

8. An electronic device comprising:

a profile system for configuring unique profile settings for an application, said profile system having multiple programmable profile settings associated with multiple services;
means for receiving service records for said multiple services;
means for registering said multiple services with said profile system using a unique ID for each of said service records; and
means for assigning said multiple programmable profile settings to respective ones of said multiple services.

9. The electronic device of claim 8, wherein the profile system has multiple programmable profile settings and a default profile setting for said multiple services; said means for registering is arranged to register said multiple services with said profile system using a unique ID for each of said service records and data for identifying the default profile setting for said application; and said apparatus further comprises means for initially assigning said default profile setting to each of said multiple services prior to said means for assigning subsequently assigning said multiple programmable settings to respective ones of said multiple services.

10. The electronic device of claim 8 or claim 9, further comprising a user interface for assigning said multiple programmable profile settings to said respective ones of said multiple services.

11. The electronic device of any one of claims 8 to 10, further comprising a synchronization server for downloading profile setting data to said electronic device whereupon said multiple programmable profile settings are assigned to said respective ones of said multiple services.

12. The electronic device of claim 11, further comprising memory within said electronic device for storing said profile setting data as hidden files pending receipt of said service records.

13. The electronic device of claim 12, further comprising means for discarding said profile setting data in the event said service records have not been received within a predetermined time period.

14. A computer-readable medium having computer readable code embodied therein for causing a computing device to perform the method of any one of claims 1 to 7.

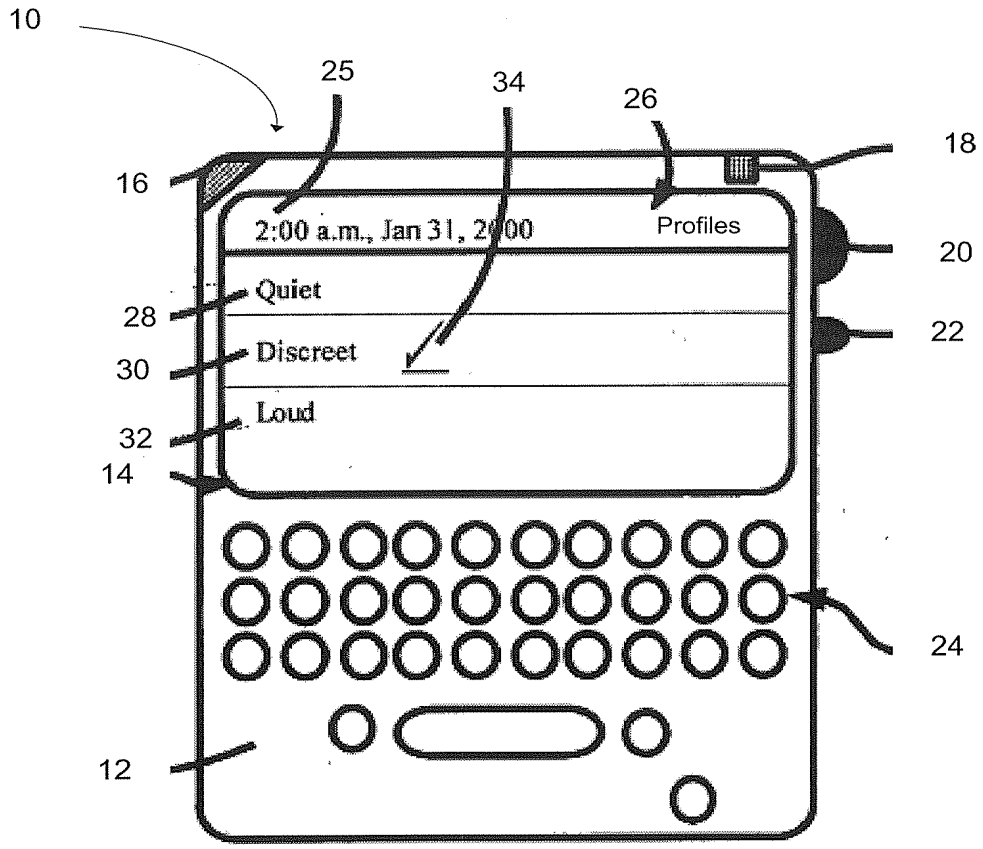
10
25
34
26
18
16
2:00 a.m., Jan 31, 2000
Profiles
20
Quiet
28
22
Discreet
30
Loud
32
14
24
12

FIG. 1

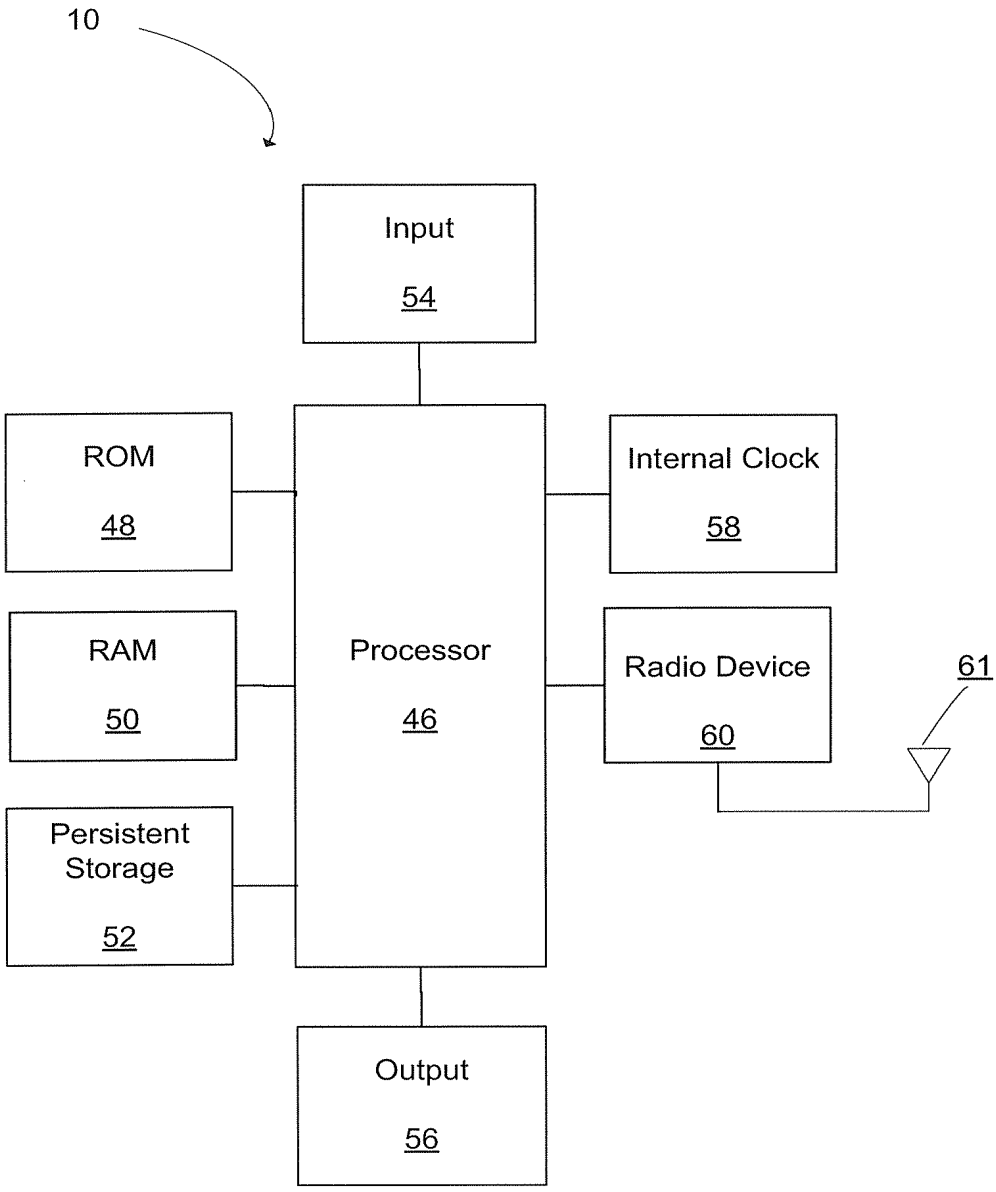
10
Input
54
ROM
48
RAM
50
Persistent Storage
52
Processor
46
Internal Clock
58
Radio Device
60
61
Output
56

FIG. 2

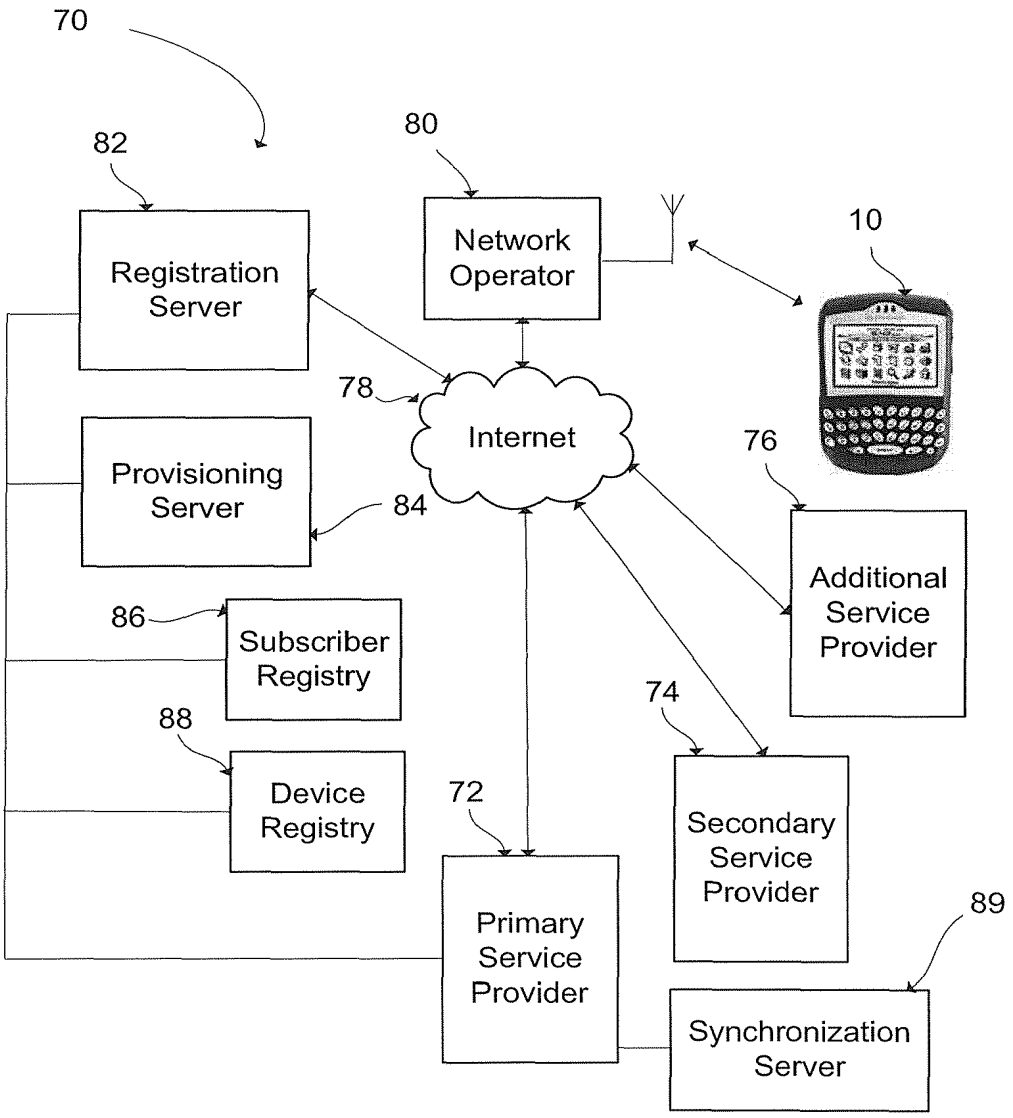
70
82
80
Registration Server
Network Operator
10
78
Internet
Provisioning Server
84
76
Additional Service Provider
86
Subscriber Registry
74
88
Device Registry
72
Secondary Service Provider
Primary Service Provider
89
Synchronization Server

FIG. 3

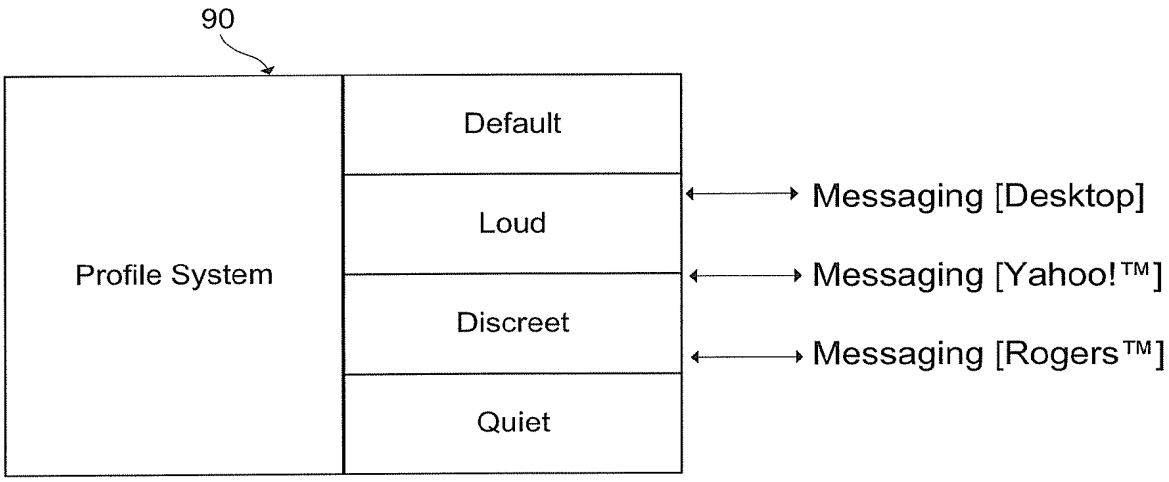
90
Profile System
Default
Loud
Discreet
Quiet
Messaging [Desktop]
Messaging [Yahoo!™]
Messaging [Rogers™]

FIG. 4

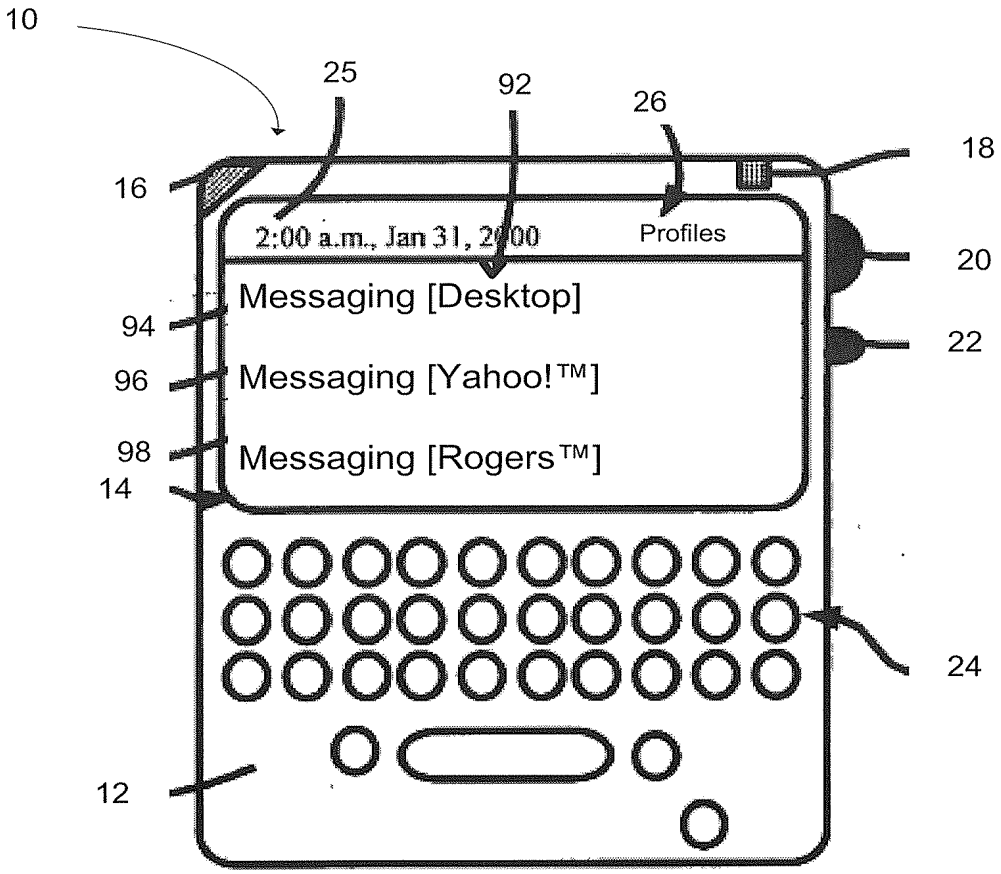
10
25
92
26
18
16
2:00 a.m., Jan 31, 2000
Profiles
20
Messaging [Desktop]
94
22
96
Messaging [Yahoo!™]
98
Messaging [Rogers™]
14
24
12

FIG. 5

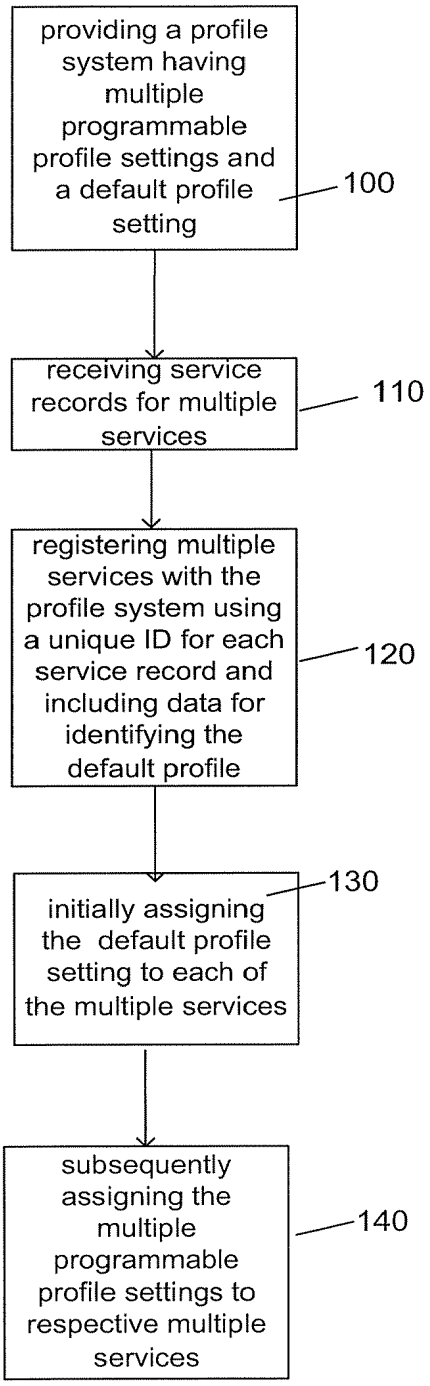
providing a profile system having multiple programmable profile settings and a default profile setting
100
receiving service records for multiple services
110
registering multiple services with the profile system using a unique ID for each service record and including data for identifying the default profile
120
initially assigning the default profile setting to each of the multiple services
130
subsequently assigning the multiple programmable profile settings to respective multiple services
140

FIG. 6

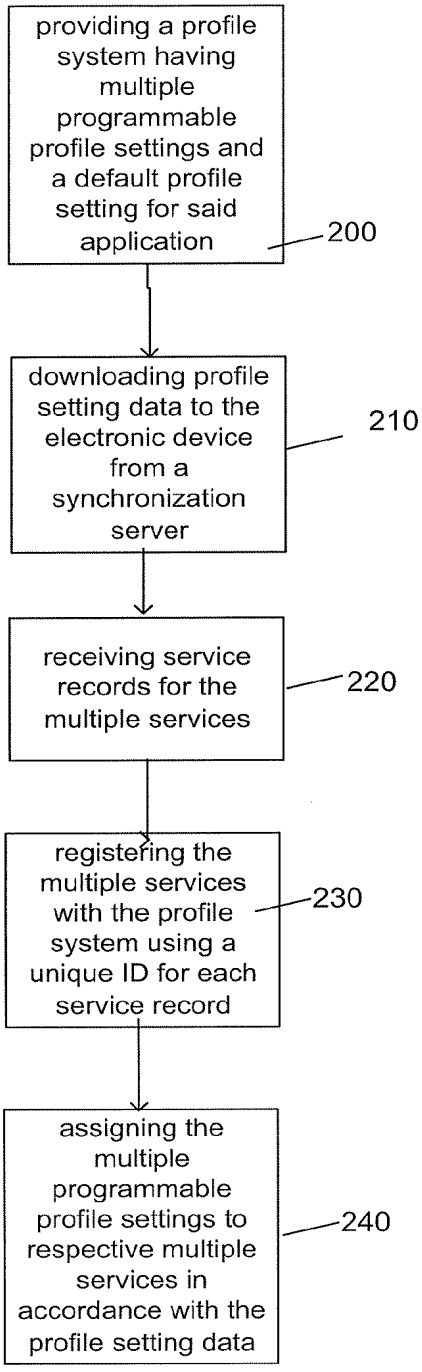
providing a profile system having multiple programmable profile settings and a default profile setting for said application
200
downloading profile setting data to the electronic device from a synchronization server
210
receiving service records for the multiple services
220
registering the multiple services with the profile system using a unique ID for each service record
230
assigning the multiple programmable profile settings to respective multiple services in accordance with the profile setting data
240

FIG. 7

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 06 11 8194

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 2005/079863 A1 (MACALUSO ANTHONY G [US]) 14 April 2005 (2005-04-14) * paragraph [0007] - paragraph [0013] *	1-14	INV. G06F9/445 H04M1/72
A	WO 97/47120 A2 (AT & T CORP [US]) 11 December 1997 (1997-12-11) * page 3, line 9 - line 17 * * page 5, line 5 - line 21 * * page 6, line 3 * * page 7, line 28 * * page 9, line 9 - page 10, line 2 * * page 14, line 25 - line 28 * * page 16, line 20 - page 17, line 2 * * page 17, line 30 - page 18, line 3 *	1-14	
A	US 2005/080862 A1 (KENT LARRY G [US] ET AL) 14 April 2005 (2005-04-14) * paragraph [0045] * * paragraph [0051] * * paragraph [0065] * * paragraph [0072] * * paragraph [0075] *	1-14	
	-/--		TECHNICAL FIELDS SEARCHED (IPC) G06F H04M G06Q

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	9 February 2007	Jonsson, Svante

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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EUROPEAN SEARCH REPORT

Application Number
EP 06 11 8194

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	DROGEHORN, O.; WUST, B.; DAVID, K: "Personalised applications and services for a mobile user" AUTONOMOUS DECENTRALIZED SYSTEMS, 2005. ISADS 2005. PROCEEDINGS, [Online] 4 April 2005 (2005-04-04), pages 473-479, XP002419282 Retrieved from the Internet: URL:http://ieeexplore.ieee.org/iel5/9846/31027/01452113.pdf?tp=&arnumber=1452113&isnumber=31027> [retrieved on 2007-02-09] * page 473, right-hand column, line 12 - line 14 * * page 474, left-hand column, line 27 - right-hand column, line 39 * * page 478, right-hand column, line 16 - line 54 * -----	4,5,11	

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	9 February 2007	Jonsson, Svante

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